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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/822,498

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3581

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09/03/2008

EXAMINER

VANCHY JR, MICHAEL J

ART UNIT

PAPER NUMBER

2624

MAIL DATE

DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/822,498

**Applicant(s)**

SHARMA ET AL.

**Examiner**

MICHAEL VANCHY JR

**Art Unit**

2624

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 May 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1, 3, 6, 7, 9-12, 16, 17, 19-21 and 23-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 3, 6, 7, 9-12, 16, 17, 19-21, and 23-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments filed May 21, 2008 have been fully considered but they are not persuasive. Explanation can be found at the end of the document.
2. Claims 2, 4, 5, 8, 13-15, 18, 22, and 27-31 have been cancelled.

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. **Claims 1-13, 15-28, and 30 are rejected under 35 U.S.C. 102(b) as being anticipated by Maurer et al., US 6,272,231 B1.**

#### **Regarding claim 1:**

A method for face modeling (Fig. 17), comprising the steps of: (a) capturing a plurality of images for a person (Fig. 14 and col. 12, lines 24-27) with a single or a plurality of image capturing systems (Fig. 2, item "12"), (b) processing said plurality of images to obtain demographic recognition of the person in the captured images (col. 5, lines 29-46), (c) choosing a face model specific to the demographic recognition of the person as an approximate face model (col. 5, lines 29-46), and (d) combining said demographic recognition with affine coordinate based mesh adjustment technique for said face modeling (Fig. 17, col. 5, lines 29-46, and col. 9, lines 21-23), wherein said

demographic recognition comprises gender and ethnicity recognition (col. 5, lines 41-46).

**Regarding claim 3:**

The method according to claim 1, wherein the method further comprises a step of displaying visual feedback about said face modeling (Fig. 1, item "20").

**Regarding claim 6:**

The method according to claim 1, wherein the method further comprises a step of using affine lines and their slope adjustment, which is proportional to depth of the point, for model estimation (Fig. 11 and col. 9, lines 51-57).

**Regarding claim 7:**

The method according to claim 1, wherein said face modeling further comprises a step of using said affine line properties without the need for calibrating the image capturing systems, whereby the image capturing systems include cameras (col. 11, lines 57-61, col. 12, lines 3-16).

**Regarding claim 9:**

The method according to claim 1, wherein the method further comprises a step of using the affine line properties for re-projecting a matched pair in two images to a third image, once four facial landmarks are located in all of the three images (Fig. 17, and col. 5, lines 29-46).

**Regarding claim 10:**

The method according to claim 1, wherein the method further comprises a step for using a single view (col. 12, lines 39-46, The examiner takes into account that since the two images, frontal and side, do not have to be taken simultaneously, that when the frontal image is only used the model is crudely made, until the addition of the side view is incorporated.) to crudely model face based on gender and ethnicity and then use

anthropometric measures for identification (Fig. 17, col. 5, lines 29-46, and col. 9, lines 21-23).

**Regarding claim 11:**

The method according to claim 1, wherein the method further comprises a step of using multiple views (col. 12, lines 24-27) to model the face in the image based on the combination of the demographics and the affine line properties and then use the anthropometric measures for identification purposes (Fig. 17, col. 5, lines 29-46, and col. 9, lines 21-23).

**Regarding claim 12:**

The method according to claim 1, wherein the method further comprises a step of using the combination of the demographics and the affine line properties for face modeling, followed by novel view generation of the face using rendering tools (Fig. 17, col. 5, lines 29-46, and col. 9, lines 21-23, col. 11, lines 52-55).

**Regarding claim 16**, see rejection made to claim 1, as it addresses the rejection to the method of this apparatus.

**Regarding claim 17:**

The apparatus of claim 16, wherein said processing means further comprises a hardware system consisting of disparate cameras at disparate locations, images from which are used for said face modeling, whereby usages of the disparate cameras comprise multiple processing of the face modeling for multiple users (col. 11, line 62 to col. 12, line 2).

**Regarding claim 19**, see rejection made to claim 3, as it addresses the rejection to the method of this apparatus.

**Regarding claim 20**, see rejection made to claim 6, as it addresses the rejection to the method of this apparatus.

**Regarding claim 21**, see rejection made to claim 7, as it addresses the rejection to the method of this apparatus.

**Regarding claim 23**, see rejection made to claim 9, as it addresses the rejection to the method of this apparatus.

**Regarding claim 24**, see rejection made to claim 10, as it addresses the rejection to the method of this apparatus.

**Regarding claim 25**, see rejection made to claim 11, as it addresses the rejection to the method of this apparatus.

**Regarding claim 26:**

The apparatus of claim 16, wherein the apparatus further comprises a means for using the combination of the demographics and the affine line properties for said face modeling, followed by novel view generation of the face using rendering tools (Fig. 17, col. 3, lines 54-65, col. 5, lines 29-46, and col. 9, lines 21-23, col. 11, lines 52-55).

***Response to Arguments***

3. The Applicant has three arguments that now will be addressed. The first argument is that the prior art (Maurer) does not determine the race and gender of a person. The Examiner respectfully disagrees. The Examiner points the applicant to (col. 5, lines 29-46). The bunch graph is matched with the image that is taken, and since the bunch graph itself can contain thousands of facial images with different defined positions called landmarks, the match determined between the bunch graph and the image taken will give an output of the correct race and gender based upon the

specific landmarks for each demographic. The second argument is that selection of a face model specific to the demographic recognition of the person as an approximate face model is foreign to Maurer. The Examiner points to the same place in the prior art, where selection of the best matched between the image and the bunch graph is selected. Based upon this best matched selection, the facial features and characteristics of the person can be placed upon the model (avatar), for natural characteristics (Abstract). The third argument is that the combination of demographic recognition with affine coordinate based mesh adjustment technique face modeling is foreign to Maurer. The Examiner points to the use of finite element models can be used (col. 13, lines 7-8), which adjusts the model based upon affine coordinates, and in this case for avatar movement. The Examiner also points to (col. 9, lines 7-31) where affine transformation is used to create a model with precise shape information. Thus affine transformation is used with the demographic, for precise shape information of the person's image.

### ***Conclusion***

1. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Vanchy Jr. whose telephone number is (571) 270-1193. The examiner can normally be reached on Monday - Friday 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Samir Ahmed can be reached on (571) 272-7413. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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